

1 What is claimed is:

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3 1. An apparatus for transferring ions from an ion source to a
4 time-of-flight mass analyzer, said apparatus comprising:

5 an ion trap having a plurality of poles arranged to form two
6 parallel adjacent planes, said planes perpendicular to the axis
7 of said mass analyzer;

8 a multipole ion guide; and

9 a trap electrode positioned between said ion guide and said
0 ion trap;

1 wherein an RF potential is applied to at least one of said
2 plurality of poles, and wherein a substantially DC potential is
3 applied to at least one of said plurality of poles, and wherein
4 the distance between said parallel planes is substantially
5 greater than the distance between poles within said planes such
6 that substantially no electric field is present within the area
7 between said parallel planes.

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